



RF Test Report

For

Applicant Name: Xwireless LLC
Address: 11565 Old Georgetown Road, Rockville, MD, USA
EUT Name: Mobile Phone
Brand Name: Vortex
Model Number: HD62

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,
Tantou Community, Songgang Street, Bao'an District, Shenzhen,
China
Report Number: BTF230725R01103
Test Standards: 47 CFR Part 15.247
Test Conclusion: Pass
FCC ID: 2ADLJ-HD62
Test Date: 2023-07-26 to 2023-08-07
Date of Issue: 2023-08-08

Prepared By:

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Date:

elma.yang / Project Engineer
2023-08-08

Approved By:

Ryan.CJ

Date:

Ryan.CJ / EMC Manager
2023-08-08



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-08-08	Original
<i>Note: Once the revision has been made, then previous versions reports are invalid.</i>		

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1 Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130
FCC Registration Number:	518915
Designation Number:	CN1330

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 Product Information

2.1 Application Information

Company Name:	Xwireless LLC
Address:	11565 Old Georgetown Road, Rockville, MD, USA

2.2 Manufacturer Information

Company Name:	Xwireless LLC
Address:	11565 Old Georgetown Road, Rockville, MD, USA

2.3 Factory Information

Company Name:	ZTECH COMMUNICATION(SZ) CO LTD
Address:	FL 7 BLOCK D BAO'AN ZHIGU INNOVATION PARK YIN'TIAN ROAD NO.4 XI'XIANG STR' BAO'AN DISTRICT SZ CHINA

2.4 General Description of Equipment under Test (EUT)

EUT Name:	Mobile Phone
Test Model Number:	HD62

2.5 Technical Information

Power Supply:	DC 3.85V from Battery
Power Adaptor:	Input:100-240V 50/60Hz 0.3A Output:5.0V 2.0A 10.0W
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz; 802.11n(HT40): 2422MHz to 2452MHz
Number of Channels:	802.11b/g/n(HT20): 11 Channels; 802.11n(HT40): 7 Channels
Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n(HT20 and HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type:	PIFA ANT
Antenna Gain#:	1.12dBi
Note: #: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.	

3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

3.2 Uncertainty of Test

Item	Measurement Uncertainty
Conducted Emission (150 kHz-30 MHz)	±2.64dB
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3.3 Summary of Test Result

Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.247	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass

4 Test Configuration

4.1 Test Equipment List

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	2022-11-24	2023-11-23
Coaxial Switcher	SCHWARZBECK	CX210	CX210	2022-11-24	2023-11-23
V-LISN	SCHWARZBECK	NSLK 8127	01073	2022-11-24	2023-11-23
LISN	AFJ	LS16/110VAC	16010020076	2023-02-23	2024-02-22
EMI Receiver	ROHDE&SCHWARZ	ESCI3	101422	2022-11-24	2023-11-23

Occupied Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in non-restricted frequency bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Band edge emissions (Radiated) Emissions in restricted frequency bands (below 1GHz) Emissions in restricted frequency bands (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMAMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMAMAM-1m	21101568	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

No.	Test Modes	Description
TM1	802.11b mode	Keep the EUT in 802.11b transmitting mode.
TM2	802.11g mode	Keep the EUT in 802.11g transmitting mode.
TM3	802.11n(HT20) mode	Keep the EUT in 802.11n(HT20) transmitting mode.
TM4	802.11n(HT40) mode	Keep the EUT in 802.11n(HT40) transmitting mode.

5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test Requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
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6 Radio Spectrum Matter Test Results (RF)

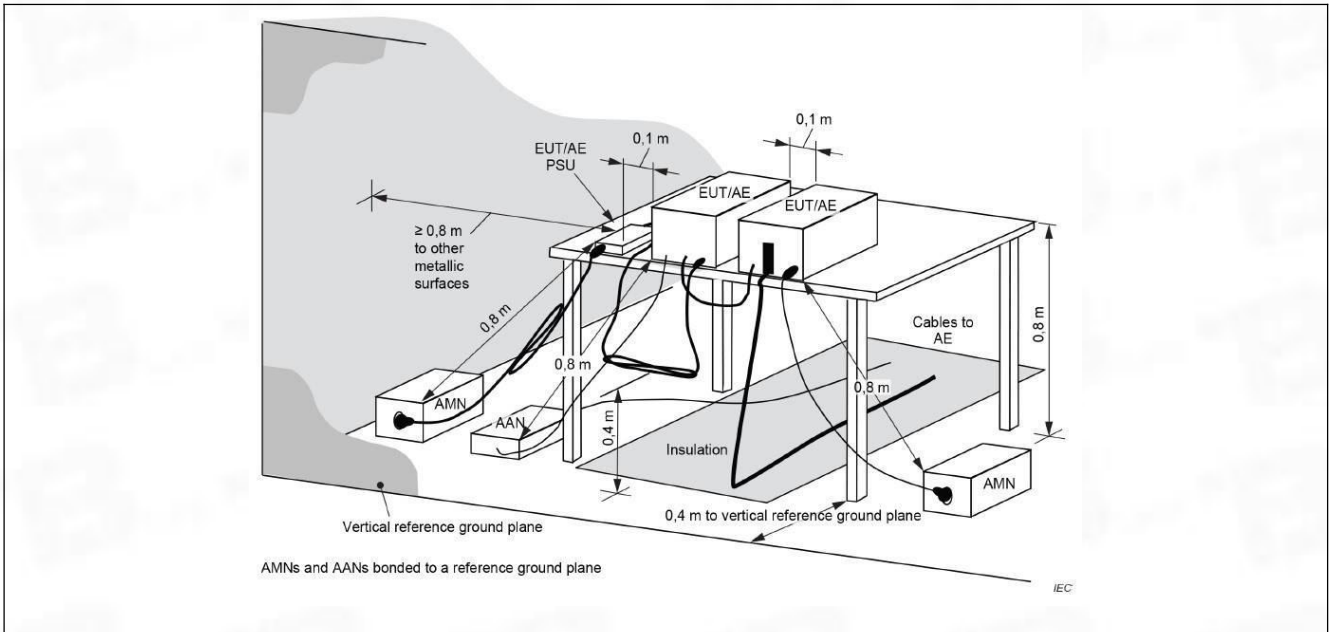
6.1 Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Method:	ANSI C63.10-2013 section 6.2 ANSI C63.10-2020 section 6.2		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
*Decreases with the logarithm of the frequency.			
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		
	Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

6.1.1 E.U.T. Operation:

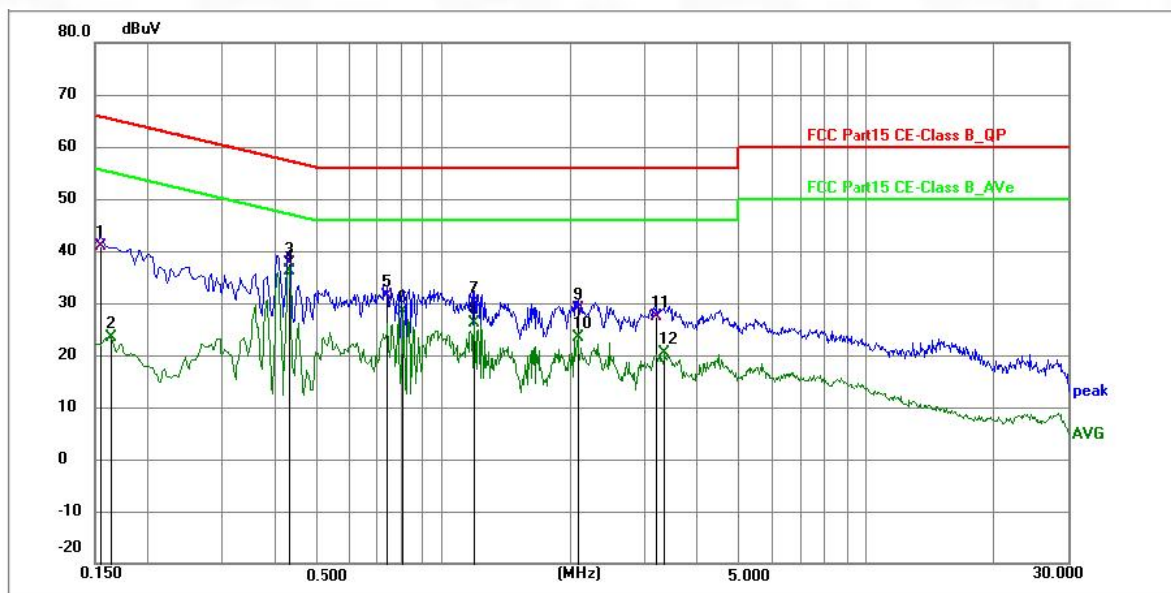
Operating Environment:	
Temperature:	22.2 °C
Humidity:	54.8 %
Atmospheric Pressure:	1010 mbar

6.1.2 Test Setup Diagram:



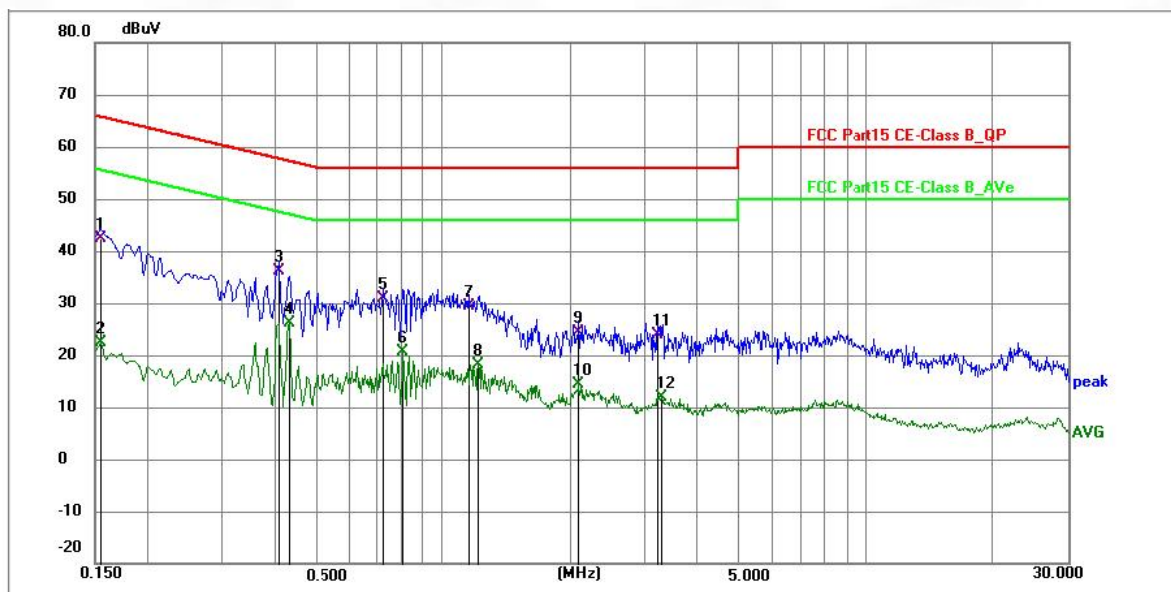
6.1.3 Test Data:

TM1 / Line: Line / Band: 2.4G / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	30.25	10.55	40.80	65.76	-24.96	QP	P	
2	0.1635	12.94	10.56	23.50	55.28	-31.78	AVG	P	
3	0.4290	26.99	10.61	37.60	57.27	-19.67	QP	P	
4 *	0.4290	25.43	10.61	36.04	47.27	-11.23	AVG	P	
5	0.7395	20.56	10.74	31.30	56.00	-24.70	QP	P	
6	0.8070	17.69	10.75	28.44	46.00	-17.56	AVG	P	
7	1.1895	19.44	10.76	30.20	56.00	-25.80	QP	P	
8	1.1895	15.38	10.76	26.14	46.00	-19.86	AVG	P	
9	2.0850	18.11	10.69	28.80	56.00	-27.20	QP	P	
10	2.0850	12.61	10.69	23.30	46.00	-22.70	AVG	P	
11	3.2010	16.59	10.71	27.30	56.00	-28.70	QP	P	
12	3.3405	9.76	10.72	20.48	46.00	-25.52	AVG	P	

TM1 / Line: Neutral / Band: 2.4G / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	31.75	10.55	42.30	65.76	-23.46	QP	P	
2	0.1544	11.90	10.55	22.45	55.76	-33.31	AVG	P	
3	0.4063	25.50	10.60	36.10	57.72	-21.62	QP	P	
4 *	0.4290	15.64	10.61	26.25	47.27	-21.02	AVG	P	
5	0.7260	20.17	10.73	30.90	56.00	-25.10	QP	P	
6	0.8070	9.88	10.75	20.63	46.00	-25.37	AVG	P	
7	1.1490	18.73	10.77	29.50	56.00	-26.50	QP	P	
8	1.2120	7.47	10.76	18.23	46.00	-27.77	AVG	P	
9	2.0940	13.81	10.69	24.50	56.00	-31.50	QP	P	
10	2.0940	3.77	10.69	14.46	46.00	-31.54	AVG	P	
11	3.2100	13.19	10.71	23.90	56.00	-32.10	QP	P	
12	3.2865	1.28	10.72	12.00	46.00	-34.00	AVG	P	

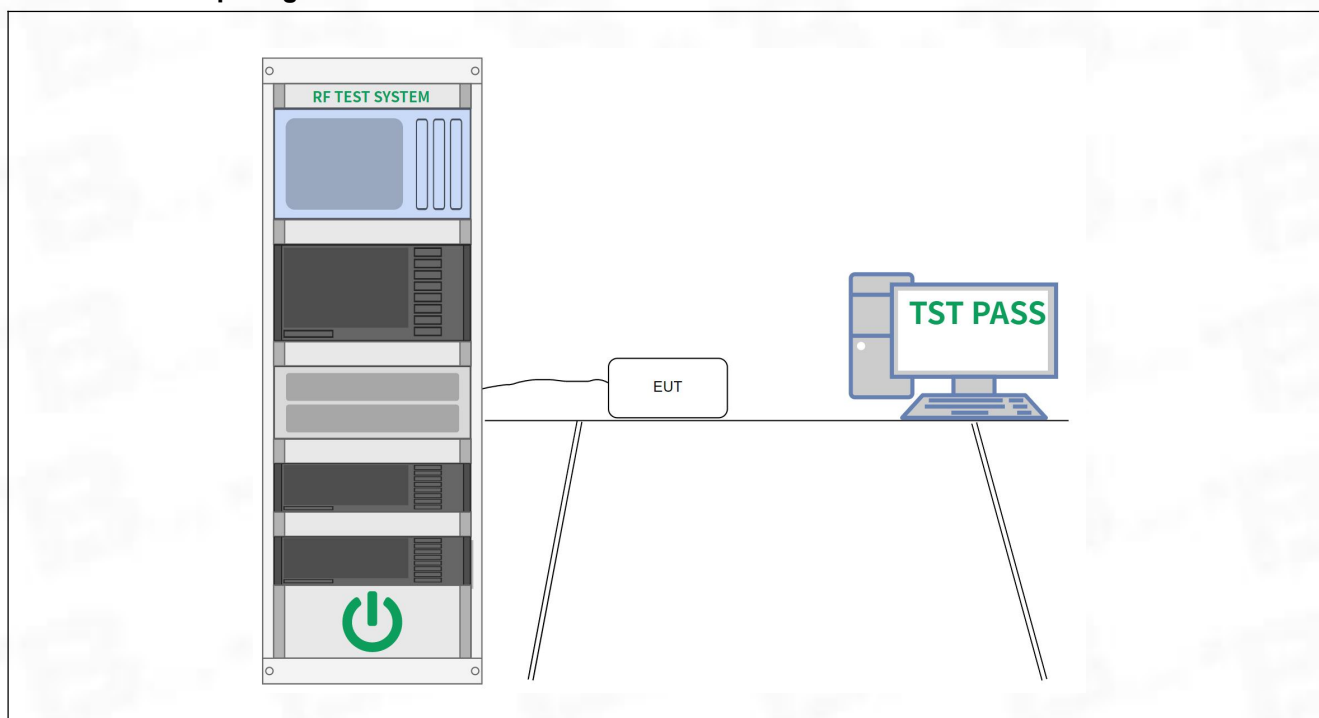
6.2 Occupied Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Method:	ANSI C63.10-2013, section 11.8 ANSI C63.10-2020, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Procedure:	a) Set RBW = 100 kHz. b) Set the VBW $\geq [3 \times \text{RBW}]$. c) Detector = peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. 11.8.1 Option 1 The steps for the first option are as follows: a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. b) Set the VBW $\geq [3 \times \text{RBW}]$. c) Detector = peak. d) Trace mode = max-hold. e) Sweep = No faster than coupled (auto) time. f) Allow the trace to stabilize. g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6 dB down amplitude”. If a marker is below this “-6 dB down amplitude” value, then it shall be as close as possible to this value. 11.8.2 Option 2 The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW $\geq 3 \times \text{RBW}$, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

6.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.4 °C
Humidity:	45.1 %
Atmospheric Pressure:	1010 mbar

6.2.2 Test Setup Diagram:



6.2.3 Test Data:

Please Refer to Appendix for Details.

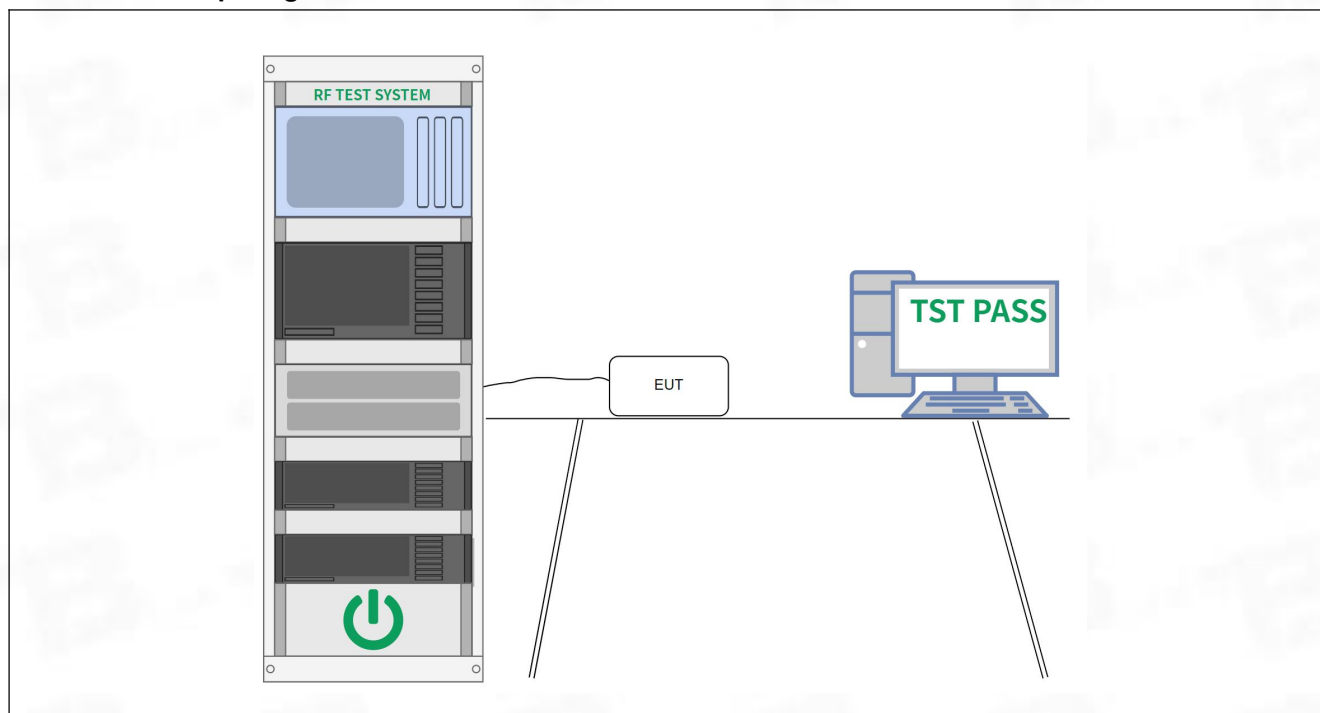
6.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Method:	ANSI C63.10-2013, section 11.9.1 ANSI C63.10-2020 section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power ANSI C63.10-2020, section 11.9.1 Maximum peak conducted output power

6.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.4 °C
Humidity:	45.1 %
Atmospheric Pressure:	1010 mbar

6.3.2 Test Setup Diagram:



6.3.3 Test Data:

Please Refer to Appendix for Details.

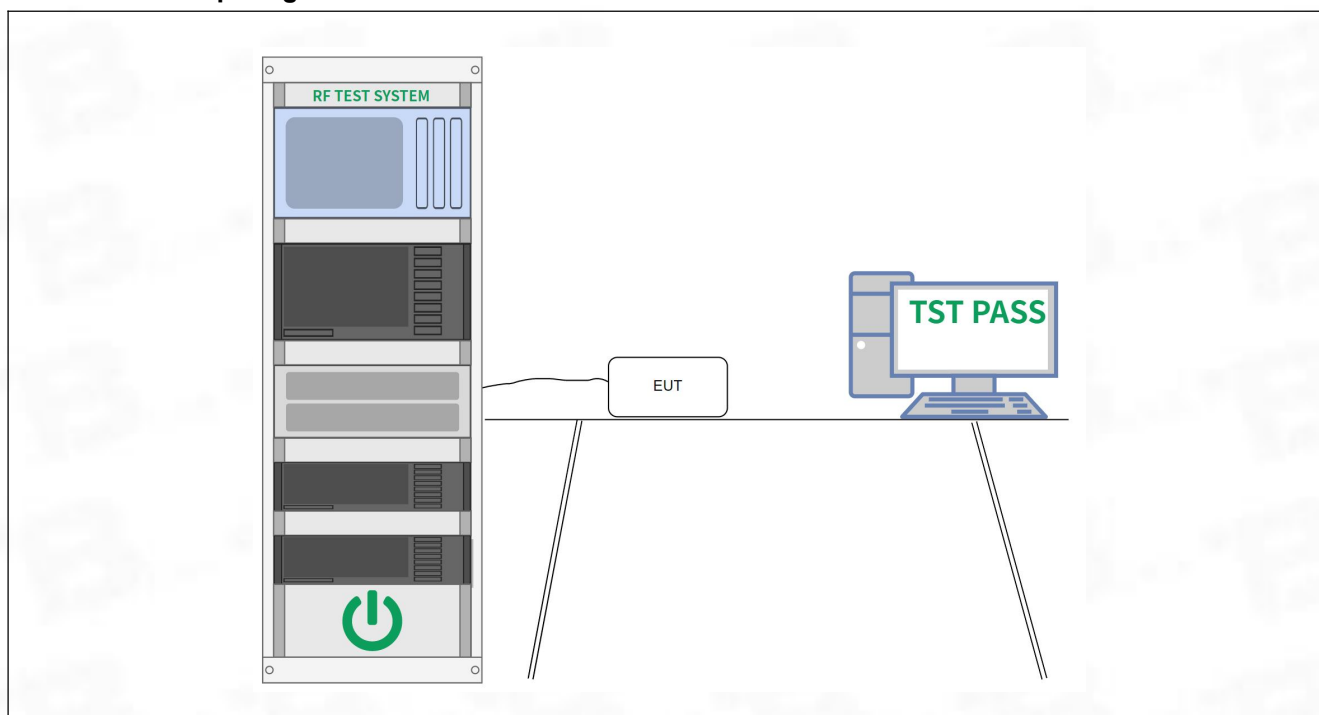
6.4 Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Method:	ANSI C63.10-2013, section 11.10 ANSI C63.10-2020, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Procedure:	ANSI C63.10-2013, section 11.10, Maximum power spectral density level in the fundamental emission ANSI C63.10-2020, section 11.10, Maximum power spectral density level in the fundamental emission

6.4.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.4 °C
Humidity:	45.1 %
Atmospheric Pressure:	1010 mbar

6.4.2 Test Setup Diagram:



6.4.3 Test Data:

Please Refer to Appendix for Details.

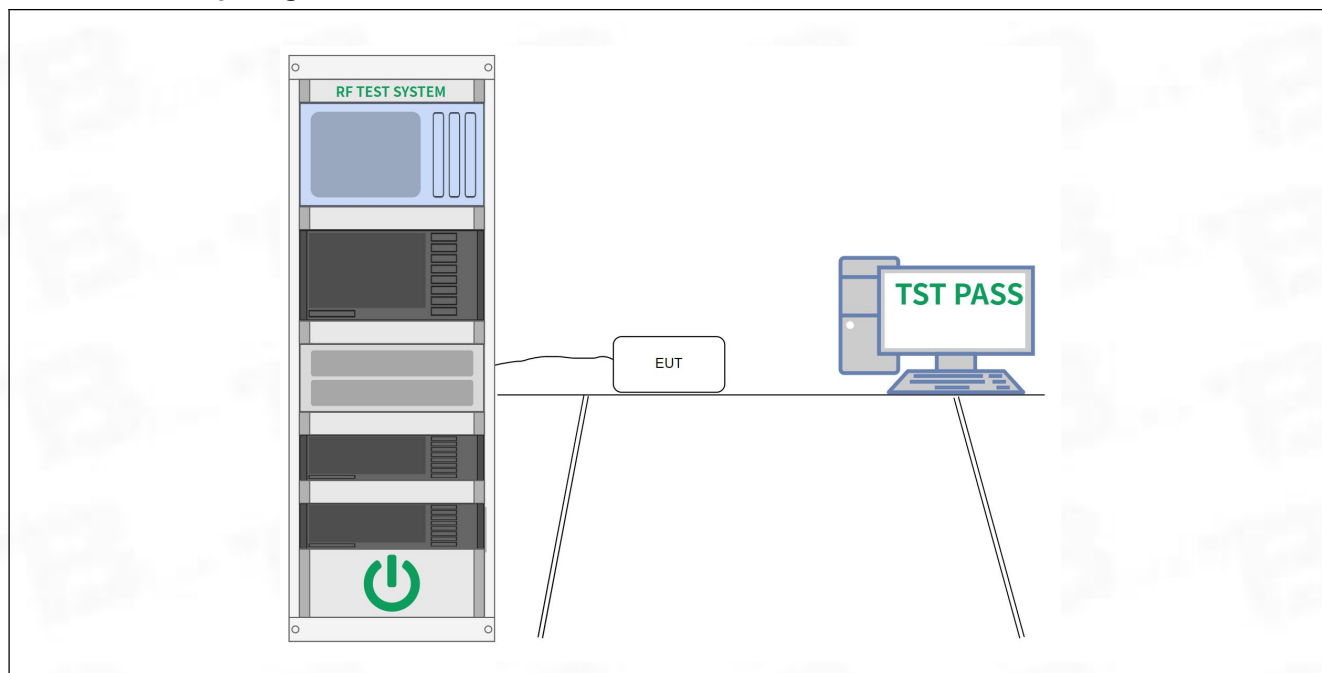
6.5 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d)
Test Method:	ANSI C63.10-2013 section 11.11 ANSI C63.10-2020 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3 ANSI C63.10-2020 Section 11.11.1, Section 11.11.2, Section 11.11.3

6.5.1 E.U.T. Operation:

Operating Environment:	
Temperature:	25.4 °C
Humidity:	45.1 %
Atmospheric Pressure:	1010 mbar

6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Please Refer to Appendix for Details.

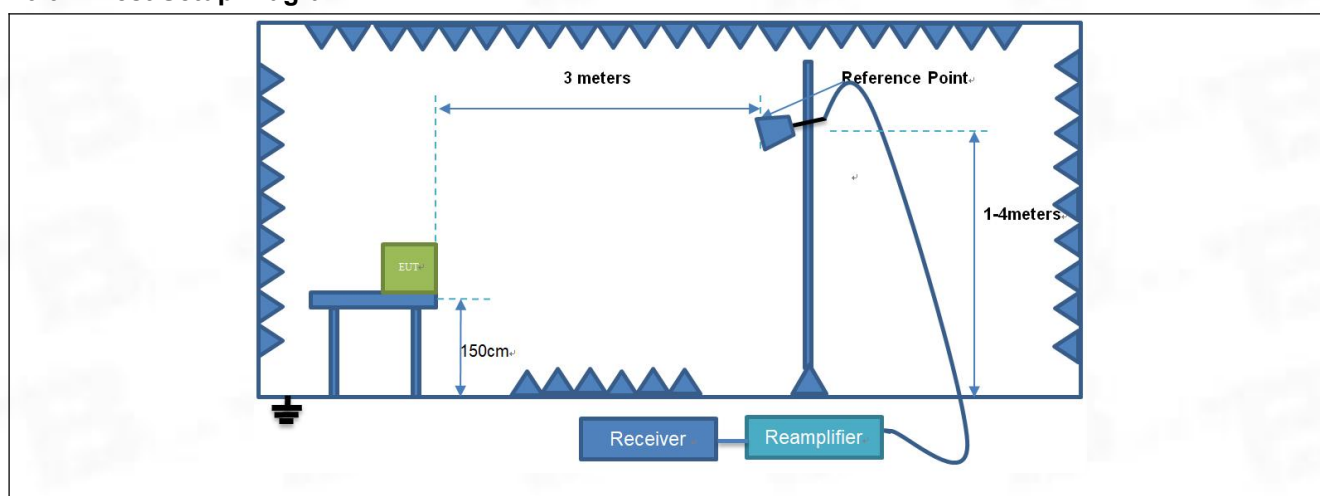
6.6 Band edge emissions (Radiated)

Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Method:	ANSI C63.10-2013 section 6.10 ANSI C63.10-2020 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Procedure:	ANSI C63.10-2013 section 6.10.5.2 ANSI C63.10-2020 section 6.10.5.2		

6.6.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.3 °C
Humidity:	50.3 %
Atmospheric Pressure:	1010 mbar

6.6.2 Test Setup Diagram:



6.6.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	67.29	-30.59	36.70	74.00	-37.30	peak	P
2	2390.000	71.94	-30.49	41.45	74.00	-32.55	peak	P
3 *	2400.000	77.92	-30.48	47.44	74.00	-26.56	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	68.29	-30.59	37.70	74.00	-36.30	peak	P
2	2390.000	73.44	-30.49	42.95	74.00	-31.05	peak	P
3 *	2400.000	78.92	-30.48	48.44	74.00	-25.56	peak	P

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	79.84	-30.39	49.45	74.00	-24.55	peak	P
2	2500.000	68.75	-30.37	38.38	74.00	-35.62	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	75.84	-30.39	45.45	74.00	-28.55	peak	P
2	2500.000	71.75	-30.37	41.38	74.00	-32.62	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	68.57	-30.59	37.98	74.00	-36.02	peak	P
2	2390.000	73.40	-30.49	42.91	74.00	-31.09	peak	P
3 *	2400.000	82.22	-30.48	51.74	74.00	-22.26	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	68.07	-30.59	37.48	74.00	-36.52	peak	P
2	2390.000	71.40	-30.49	40.91	74.00	-33.09	peak	P
3 *	2400.000	79.22	-30.48	48.74	74.00	-25.26	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	78.48	-30.39	48.09	74.00	-25.91	peak	P
2	2500.000	74.04	-30.37	43.67	74.00	-30.33	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	77.98	-30.39	47.59	74.00	-26.41	peak	P
2	2500.000	70.54	-30.37	40.17	74.00	-33.83	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	68.03	-30.59	37.44	74.00	-36.56	peak	P
2	2390.000	74.17	-30.49	43.68	74.00	-30.32	peak	P
3 *	2400.000	82.15	-30.48	51.67	74.00	-22.33	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	69.03	-30.59	38.44	74.00	-35.56	peak	P
2	2390.000	68.17	-30.49	37.68	74.00	-36.32	peak	P
3 *	2400.000	76.15	-30.48	45.67	74.00	-28.33	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	79.60	-30.39	49.21	74.00	-24.79	peak	P
2	2500.000	77.89	-30.37	47.52	74.00	-26.48	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	77.60	-30.39	47.21	74.00	-26.79	peak	P
2	2500.000	77.39	-30.37	47.02	74.00	-26.98	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	72.03	-30.59	41.44	74.00	-32.56	peak	P
2	2390.000	69.17	-30.49	38.68	74.00	-35.32	peak	P
3 *	2400.000	81.15	-30.48	50.67	74.00	-23.33	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	67.03	-30.59	36.44	74.00	-37.56	peak	P
2	2390.000	69.17	-30.49	38.68	74.00	-35.32	peak	P
3 *	2400.000	82.15	-30.48	51.67	74.00	-22.33	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	80.10	-30.39	49.71	74.00	-24.29	peak	P
2	2500.000	78.39	-30.37	48.02	74.00	-25.98	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2483.500	79.60	-30.39	49.21	74.00	-24.79	peak	P
2 *	2500.000	79.89	-30.37	49.52	74.00	-24.48	peak	P

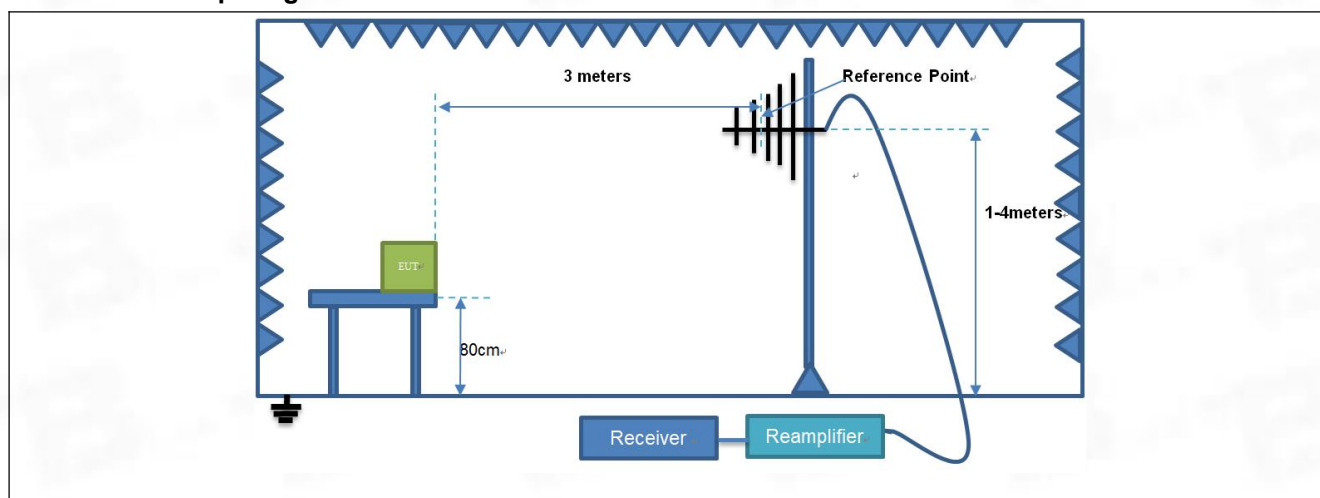
6.7 Emissions in restricted frequency bands (below 1GHz)

Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Method:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Procedure:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4		

6.7.1 E.U.T. Operation:

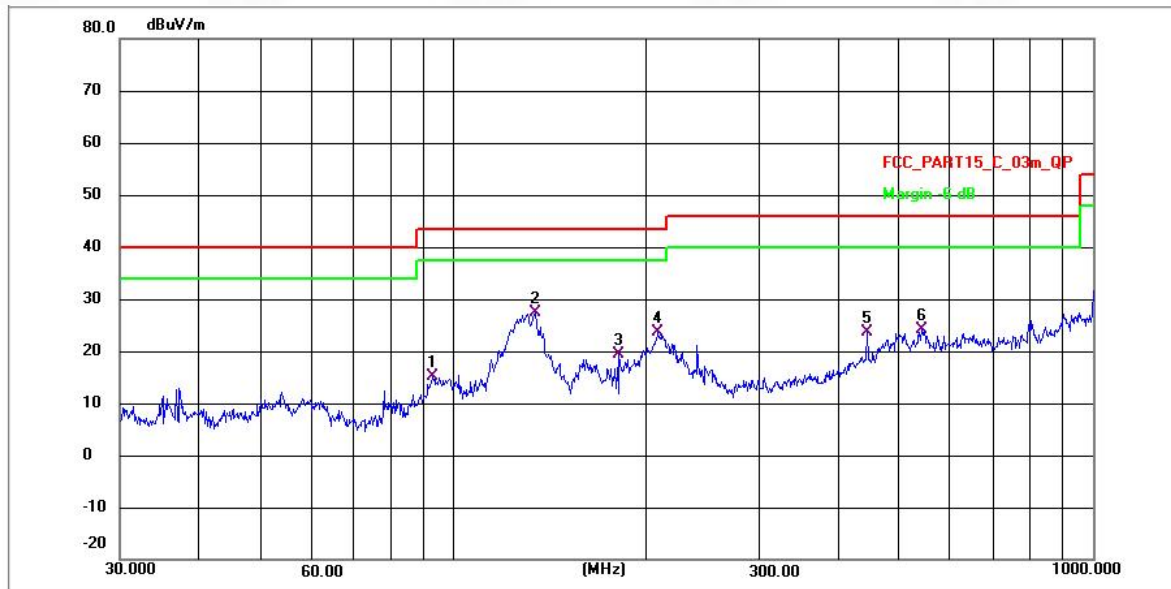
Operating Environment:	
Temperature:	23.3 °C
Humidity:	50.3 %
Atmospheric Pressure:	1010 mbar

6.7.2 Test Setup Diagram:



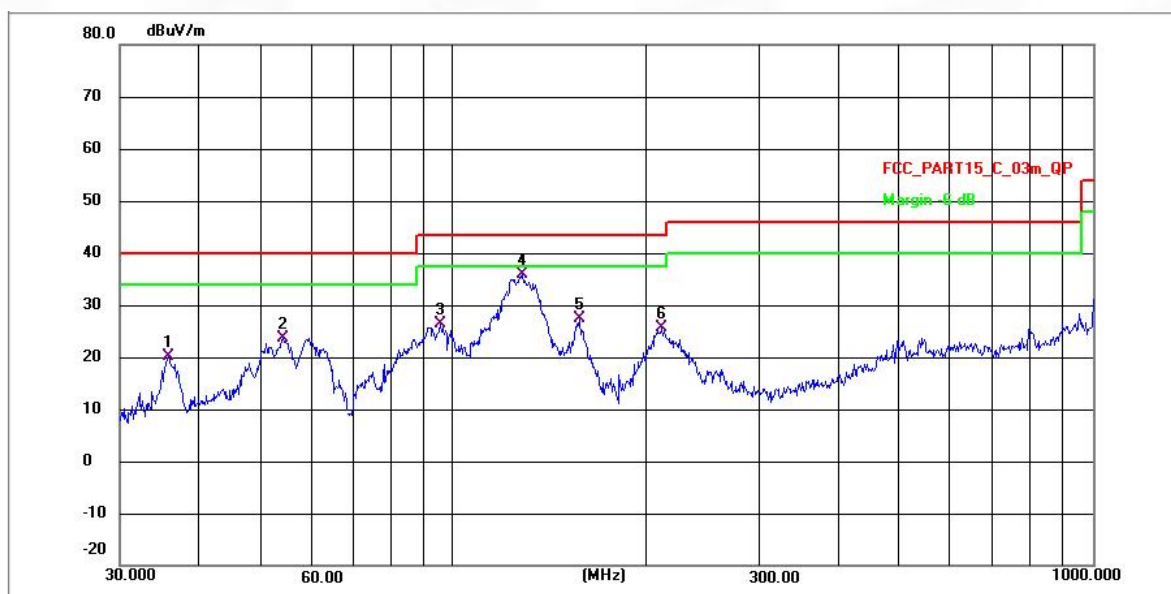
6.7.3 Test Data:

Note: All the mode have been tested, and only the worst mode are in the report
 TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	92.7871	44.55	-29.42	15.13	43.50	-28.37	QP	P
2 *	134.0882	55.31	-27.92	27.39	43.50	-16.11	QP	P
3	181.9202	46.93	-27.50	19.43	43.50	-24.07	QP	P
4	208.9463	50.48	-26.94	23.54	43.50	-19.96	QP	P
5	442.5177	46.28	-22.64	23.64	46.00	-22.36	QP	P
6	541.3725	45.62	-21.57	24.05	46.00	-21.95	QP	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	35.8118	40.85	-20.62	20.23	40.00	-19.77	QP	P
2	53.9763	43.92	-20.25	23.67	40.00	-16.33	QP	P
3	95.4270	55.44	-28.99	26.45	43.50	-17.05	QP	P
4 *	128.1130	63.75	-27.97	35.78	43.50	-7.72	QP	P
5	157.0074	55.02	-27.72	27.30	43.50	-16.20	QP	P
6	211.8977	52.37	-26.81	25.56	43.50	-17.94	QP	P

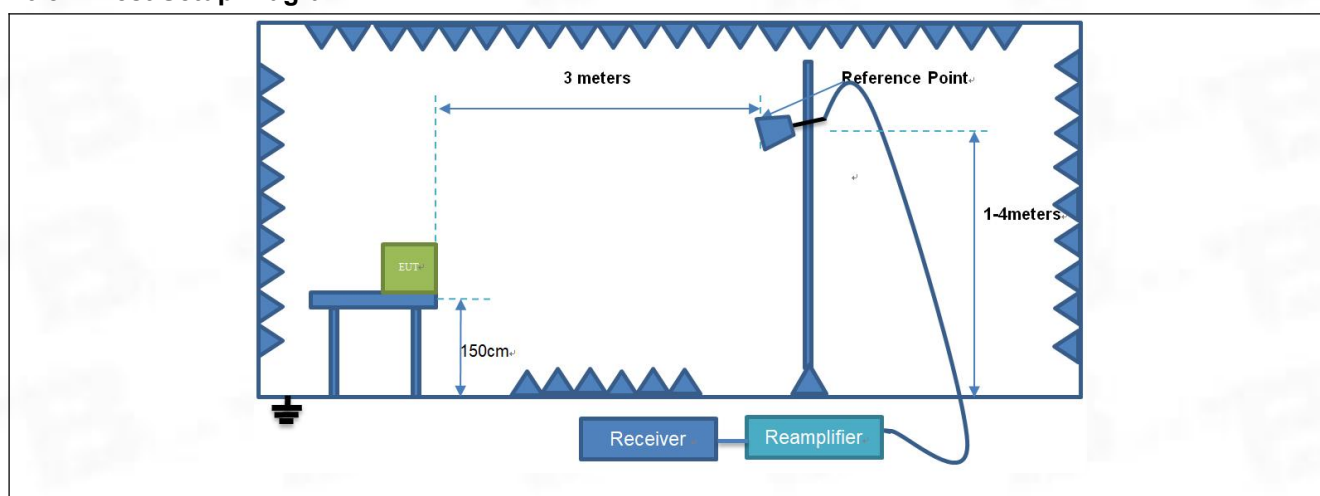
6.8 Emissions in restricted frequency bands (above 1GHz)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`		
Test Method:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.			
Procedure:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4		

6.8.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.3 °C
Humidity:	50.3 %
Atmospheric Pressure:	1010 mbar

6.8.2 Test Setup Diagram:



6.8.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3482.580	66.53	-29.07	37.46	74.00	-36.54	peak	P
2	4682.104	67.18	-28.27	38.91	74.00	-35.09	peak	P
3	6817.521	69.27	-25.09	44.18	74.00	-29.82	peak	P
4	8809.863	71.35	-24.69	46.66	74.00	-27.34	peak	P
5	12079.387	69.12	-22.10	47.02	74.00	-26.98	peak	P
6 *	15763.603	72.74	-21.55	51.19	74.00	-22.81	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3631.638	63.23	-29.04	34.19	74.00	-39.81	peak	P
2	5628.619	66.18	-26.54	39.64	74.00	-34.36	peak	P
3	6989.109	69.32	-24.94	44.38	74.00	-29.62	peak	P
4	10215.017	71.65	-24.39	47.26	74.00	-26.74	peak	P
5	12902.240	70.04	-21.39	48.65	74.00	-25.35	peak	P
6 *	16376.651	70.57	-19.78	50.79	74.00	-23.21	peak	P

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3690.898	66.08	-29.03	37.05	74.00	-36.95	peak	P
2	5122.477	62.05	-27.27	34.78	74.00	-39.22	peak	P
3	7144.336	67.93	-24.89	43.04	74.00	-30.96	peak	P
4	9500.178	68.83	-23.20	45.63	74.00	-28.37	peak	P
5	13454.469	71.01	-21.00	50.01	74.00	-23.99	peak	P
6 *	16754.896	70.24	-18.72	51.52	74.00	-22.48	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3631.638	64.73	-29.04	35.69	74.00	-38.31	peak	P
2	4475.677	65.08	-28.80	36.28	74.00	-37.72	peak	P
3	6558.520	68.26	-25.32	42.94	74.00	-31.06	peak	P
4	8288.633	70.56	-25.41	45.15	74.00	-28.85	peak	P
5	10983.644	72.83	-23.48	49.35	74.00	-24.65	peak	P
6 *	15452.335	71.86	-21.39	50.47	74.00	-23.53	peak	P

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4224.286	67.07	-28.90	38.17	74.00	-35.83	peak	P
2	5738.683	67.29	-26.18	41.11	74.00	-32.89	peak	P
3	7385.800	68.19	-24.81	43.38	74.00	-30.62	peak	P
4	9371.993	66.58	-23.48	43.10	74.00	-30.90	peak	P
5	12816.752	67.76	-21.44	46.32	74.00	-27.68	peak	P
6 *	15681.803	70.25	-21.53	48.72	74.00	-25.28	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3863.362	66.56	-29.02	37.54	74.00	-36.46	peak	P
2	5167.088	65.15	-27.23	37.92	74.00	-36.08	peak	P
3	6655.914	71.09	-25.24	45.85	74.00	-28.15	peak	P
4	8814.957	70.92	-24.69	46.23	74.00	-27.77	peak	P
5	12401.319	69.58	-21.73	47.85	74.00	-26.15	peak	P
6 *	16979.152	68.03	-18.32	49.71	74.00	-24.29	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4996.716	68.82	-27.38	41.44	74.00	-32.56	peak	P
2	6526.372	70.16	-25.35	44.81	74.00	-29.19	peak	P
3	6970.952	70.78	-24.96	45.82	74.00	-28.18	peak	P
4	8761.614	72.88	-24.79	48.09	74.00	-25.91	peak	P
5 *	12625.558	69.66	-21.55	48.11	74.00	-25.89	peak	P
6	15341.080	68.30	-21.15	47.15	74.00	-26.85	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3286.020	62.24	-29.25	32.99	74.00	-41.01	peak	P
2	4769.521	65.28	-28.03	37.25	74.00	-36.75	peak	P
3	5664.525	65.29	-26.41	38.88	74.00	-35.12	peak	P
4	8195.724	69.36	-25.45	43.91	74.00	-30.09	peak	P
5	11299.211	70.32	-23.22	47.10	74.00	-26.90	peak	P
6 *	15051.200	72.46	-20.51	51.95	74.00	-22.05	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4163.676	55.18	-28.93	26.25	74.00	-47.75	peak	P
2	5488.846	62.17	-26.96	35.21	74.00	-38.79	peak	P
3	7417.891	68.62	-24.80	43.82	74.00	-30.18	peak	P
4	9613.430	71.25	-23.44	47.81	74.00	-26.19	peak	P
5	12469.611	70.76	-21.65	49.11	74.00	-24.89	peak	P
6 *	17426.632	67.08	-16.61	50.47	74.00	-23.53	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3246.370	67.55	-29.29	38.26	74.00	-35.74	peak	P
2	4923.600	70.11	-27.59	42.52	74.00	-31.48	peak	P
3	6010.306	70.48	-25.33	45.15	74.00	-28.85	peak	P
4	7690.797	74.65	-25.06	49.59	74.00	-24.41	peak	P
5	10182.591	72.69	-24.37	48.32	74.00	-25.68	peak	P
6 *	15235.029	71.31	-20.91	50.40	74.00	-23.60	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3795.843	67.35	-29.03	38.32	74.00	-35.68	peak	P
2	4831.962	65.69	-27.85	37.84	74.00	-36.16	peak	P
3	6430.873	71.28	-25.37	45.91	74.00	-28.09	peak	P
4 *	7920.911	74.46	-25.41	49.05	74.00	-24.95	peak	P
5	9566.309	71.92	-23.34	48.58	74.00	-25.42	peak	P
6	16687.234	66.59	-18.85	47.74	74.00	-26.26	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5090.007	60.24	-27.29	32.95	74.00	-41.05	peak	P
2	5557.490	60.24	-26.76	33.48	74.00	-40.52	peak	P
3	6924.763	60.70	-25.00	35.70	74.00	-38.30	peak	P
4	8419.016	65.29	-25.35	39.94	74.00	-34.06	peak	P
5	11460.378	68.20	-23.10	45.10	74.00	-28.90	peak	P
6 *	15790.965	70.35	-21.55	48.80	74.00	-25.20	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3511.894	64.52	-29.06	35.46	74.00	-38.54	peak	P
2	5823.903	66.35	-25.90	40.45	74.00	-33.55	peak	P
3	6713.879	64.94	-25.19	39.75	74.00	-34.25	peak	P
4	8087.477	67.92	-25.49	42.43	74.00	-31.57	peak	P
5	10505.464	71.99	-24.50	47.49	74.00	-26.51	peak	P
6 *	13993.884	69.39	-21.09	48.30	74.00	-25.70	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3992.781	62.92	-29.01	33.91	74.00	-40.09	peak	P
2	5488.846	58.67	-26.96	31.71	74.00	-42.29	peak	P
3	6526.372	62.66	-25.35	37.31	74.00	-36.69	peak	P
4	7820.813	65.06	-25.26	39.80	74.00	-34.20	peak	P
5	12401.319	65.58	-21.73	43.85	74.00	-30.15	peak	P
6 *	15398.832	71.73	-21.28	50.45	74.00	-23.55	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3487.617	70.41	-29.06	41.35	74.00	-32.65	peak	P
2	4320.604	69.33	-28.86	40.47	74.00	-33.53	peak	P
3	5271.172	70.04	-27.15	42.89	74.00	-31.11	peak	P
4	6438.313	71.57	-25.37	46.20	74.00	-27.80	peak	P
5	10679.976	71.33	-24.13	47.20	74.00	-26.80	peak	P
6 *	15398.832	71.73	-21.28	50.45	74.00	-23.55	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4169.698	63.73	-28.92	34.81	74.00	-39.19	peak	P
2	5628.619	65.68	-26.54	39.14	74.00	-34.86	peak	P
3	6526.372	68.66	-25.35	43.31	74.00	-30.69	peak	P
4	9641.257	67.50	-23.51	43.99	74.00	-30.01	peak	P
5	13993.884	71.39	-21.09	50.30	74.00	-23.70	peak	P
6 *	16591.048	70.97	-19.02	51.95	74.00	-22.05	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3853.325	59.48	-29.01	30.47	74.00	-43.53	peak	P
2	5438.313	60.89	-27.00	33.89	74.00	-40.11	peak	P
3	6989.109	69.32	-24.94	44.38	74.00	-29.62	peak	P
4	8953.620	72.23	-24.40	47.83	74.00	-26.17	peak	P
5 *	10194.370	74.85	-24.37	50.48	74.00	-23.52	peak	P
6	15541.920	68.57	-21.51	47.06	74.00	-26.94	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3600.284	64.33	-29.04	35.29	74.00	-38.71	peak	P
2	4831.962	65.19	-27.85	37.34	74.00	-36.66	peak	P
3	5644.912	66.86	-26.48	40.38	74.00	-33.62	peak	P
4	8453.153	71.87	-25.34	46.53	74.00	-27.47	peak	P
5	10847.977	72.97	-23.76	49.21	74.00	-24.79	peak	P
6 *	16528.824	68.56	-19.13	49.43	74.00	-24.57	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3780.514	60.31	-29.03	31.28	74.00	-42.72	peak	P
2	5271.172	67.54	-27.15	40.39	74.00	-33.61	peak	P
3	6526.372	70.16	-25.35	44.81	74.00	-29.19	peak	P
4	7690.797	71.65	-25.06	46.59	74.00	-27.41	peak	P
5 *	9818.426	72.02	-23.90	48.12	74.00	-25.88	peak	P
6	15012.098	68.28	-20.43	47.85	74.00	-26.15	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3795.843	55.85	-29.03	26.82	74.00	-47.18	peak	P
2	4443.453	62.96	-28.81	34.15	74.00	-39.85	peak	P
3	7351.722	63.97	-24.82	39.15	74.00	-34.85	peak	P
4	10505.464	73.49	-24.50	48.99	74.00	-25.01	peak	P
5	12999.565	69.12	-21.34	47.78	74.00	-26.22	peak	P
6 *	16062.560	73.24	-21.28	51.96	74.00	-22.04	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3517.990	60.92	-29.05	31.87	74.00	-42.13	peak	P
2	4486.038	64.91	-28.79	36.12	74.00	-37.88	peak	P
3	5323.229	66.18	-27.10	39.08	74.00	-34.92	peak	P
4	7129.896	70.16	-24.89	45.27	74.00	-28.73	peak	P
5	8120.270	69.56	-25.48	44.08	74.00	-29.92	peak	P
6 *	15479.156	70.57	-21.45	49.12	74.00	-24.88	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4354.454	60.70	-28.85	31.85	74.00	-42.15	peak	P
2	6267.553	65.89	-25.36	40.53	74.00	-33.47	peak	P
3	7035.726	66.59	-24.92	41.67	74.00	-32.33	peak	P
4	9530.431	71.05	-23.27	47.78	74.00	-26.22	peak	P
5 *	10948.778	75.27	-23.55	51.72	74.00	-22.28	peak	P
6	16174.372	71.84	-20.75	51.09	74.00	-22.91	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4181.767	57.87	-28.93	28.94	74.00	-45.06	peak	P
2	6874.906	63.45	-25.04	38.41	74.00	-35.59	peak	P
3	7326.267	65.84	-24.83	41.01	74.00	-32.99	peak	P
4	8563.819	67.31	-25.19	42.12	74.00	-31.88	peak	P
5 *	11633.928	69.05	-22.83	46.22	74.00	-27.78	peak	P
6	14618.166	66.45	-21.01	45.44	74.00	-28.56	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	4062.629	64.37	-28.97	35.40	74.00	-38.60	peak	P
2	5031.498	67.14	-27.34	39.80	74.00	-34.20	peak	P
3	6106.616	65.08	-25.34	39.74	74.00	-34.26	peak	P
4	7852.524	73.56	-25.30	48.26	74.00	-25.74	peak	P
5 *	10453.970	73.95	-24.49	49.46	74.00	-24.54	peak	P
6	15532.938	66.56	-21.50	45.06	74.00	-28.94	peak	P

7 Test Setup Photos

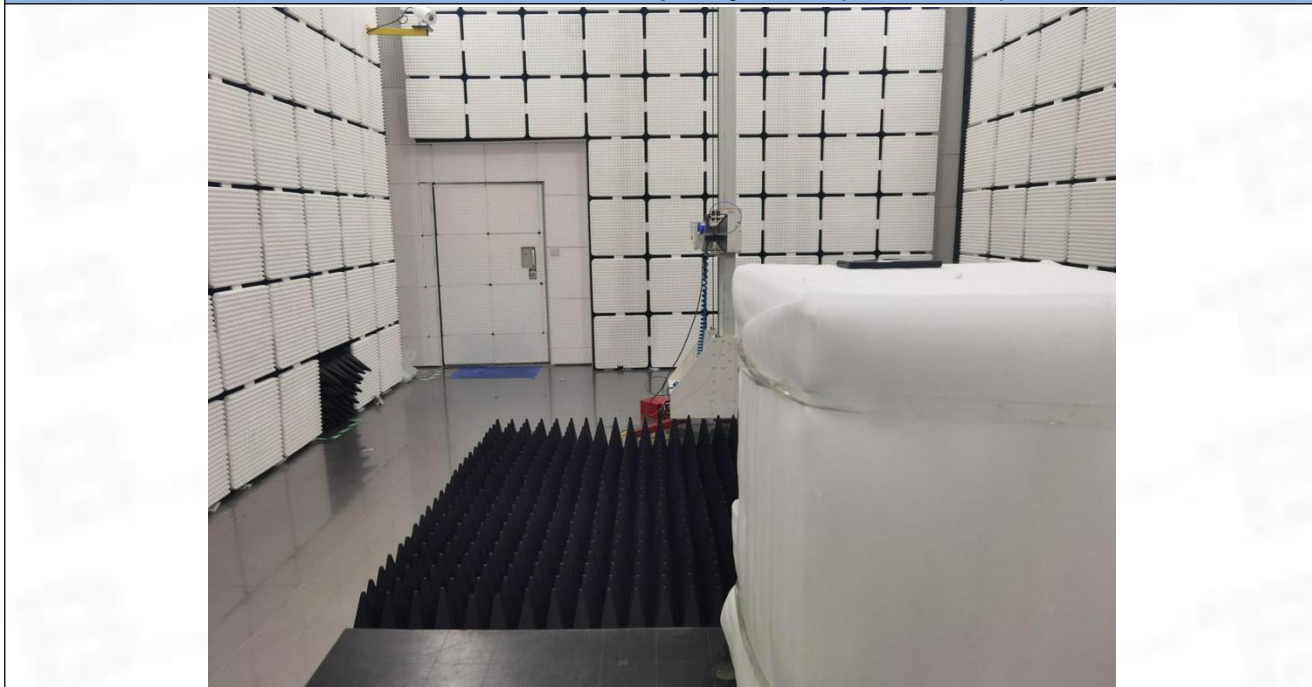
Conducted Emission at AC power line



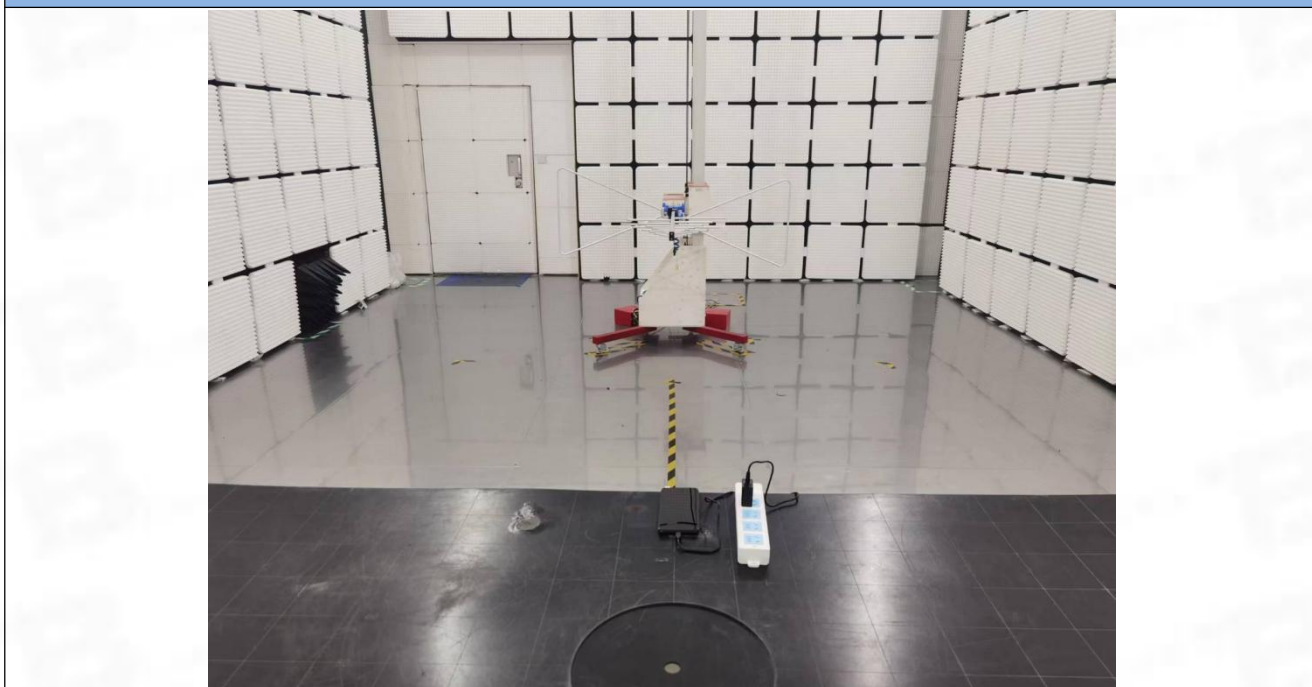
**Occupied Bandwidth
Maximum Conducted Output Power
Power Spectral Density
Emissions in non-restricted frequency bands**



Band edge emissions (Radiated)
Emissions in restricted frequency bands (above 1GHz)



Emissions in restricted frequency bands (below 1GHz)



8 EUT Constructional Details (EUT Photos)

Please refer to the report No.BTF230725R01001

Appendix

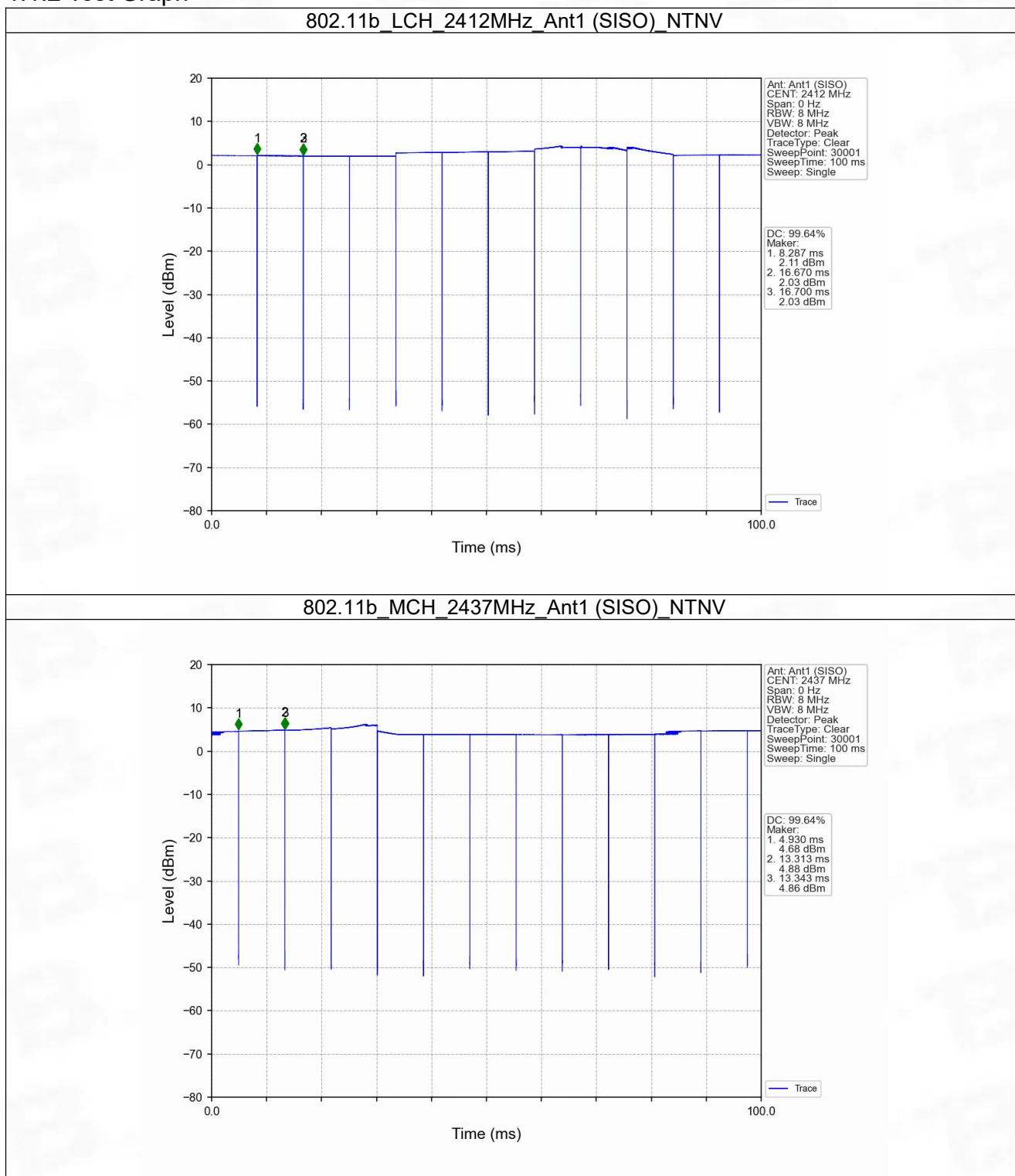
1. Duty Cycle

1.1 Ant1

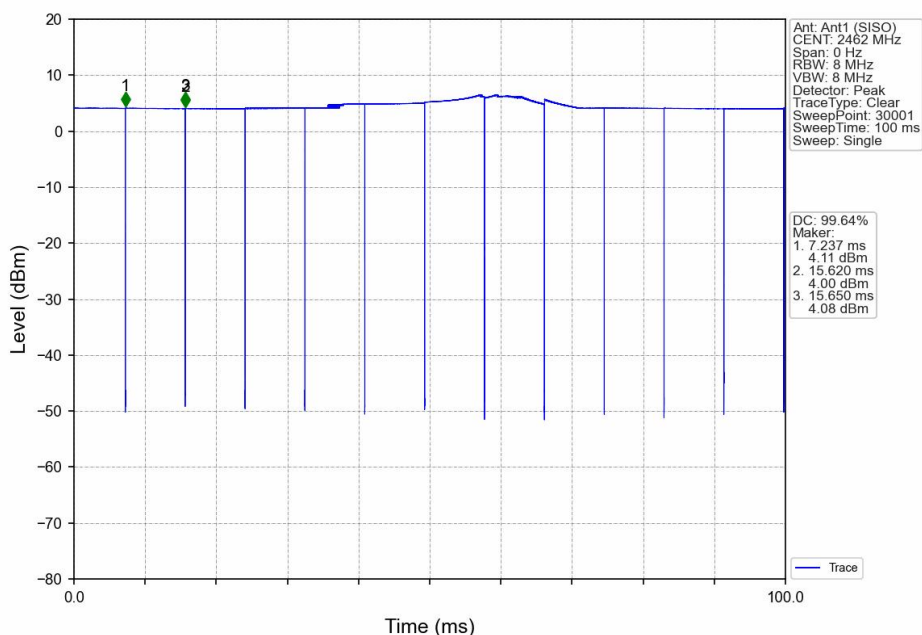
1.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.383	8.413	99.64	0.02	0.04
		2437	8.383	8.413	99.64	0.02	0.04
		2462	8.383	8.413	99.64	0.02	0.00
802.11g	SISO	2412	1.392	1.427	97.55	0.11	0.03
		2437	1.392	1.427	97.55	0.11	0.03
		2462	1.393	1.428	97.55	0.11	0.03
802.11n (HT20)	SISO	2412	1.301	1.336	97.38	0.12	0.07
		2437	1.301	1.336	97.38	0.12	0.03
		2462	1.301	1.337	97.31	0.12	0.10
802.11n (HT40)	SISO	2422	0.648	0.682	95.01	0.22	0.03
		2437	0.649	0.683	95.02	0.22	0.03
		2452	0.648	0.683	94.88	0.23	0.07

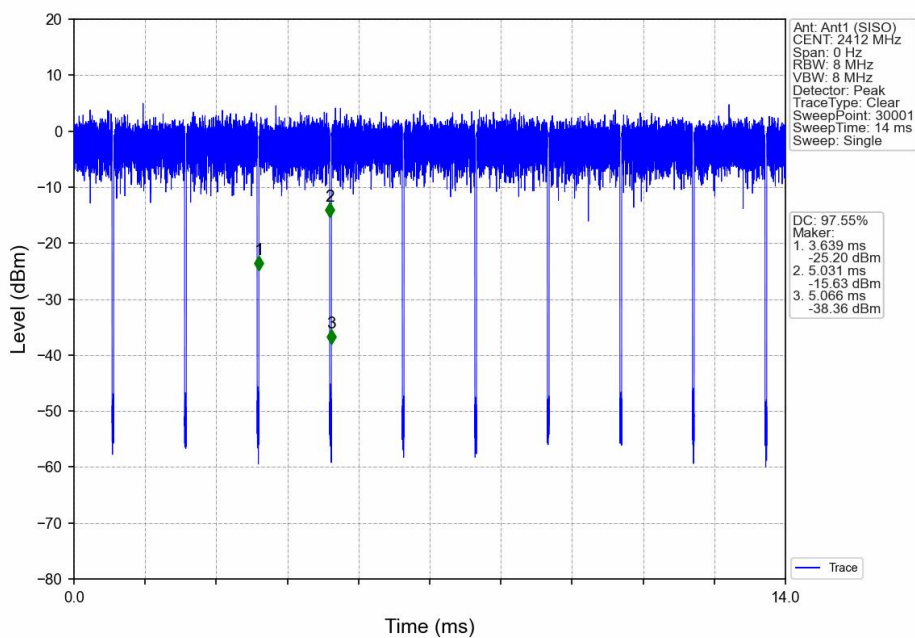
1.1.2 Test Graph



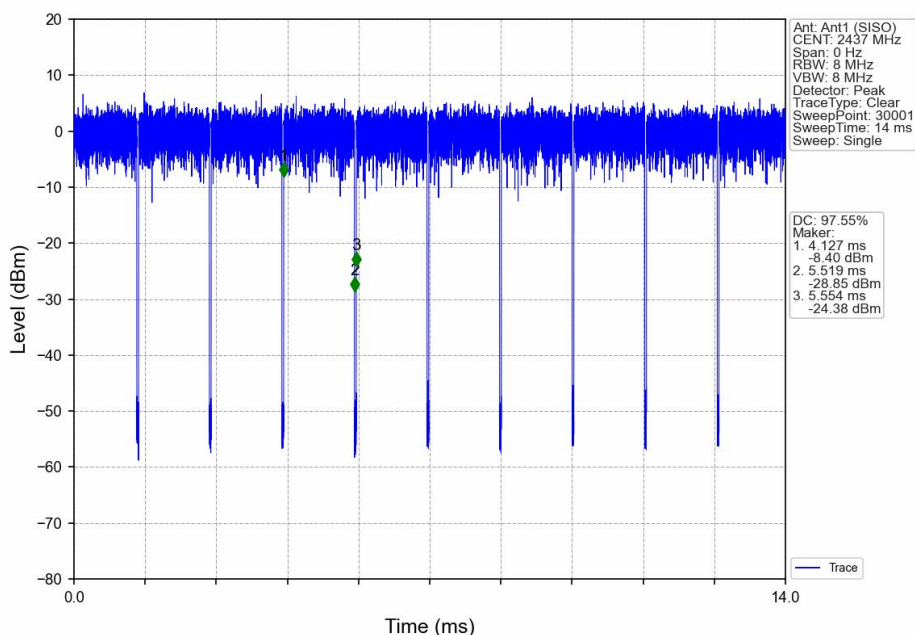
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



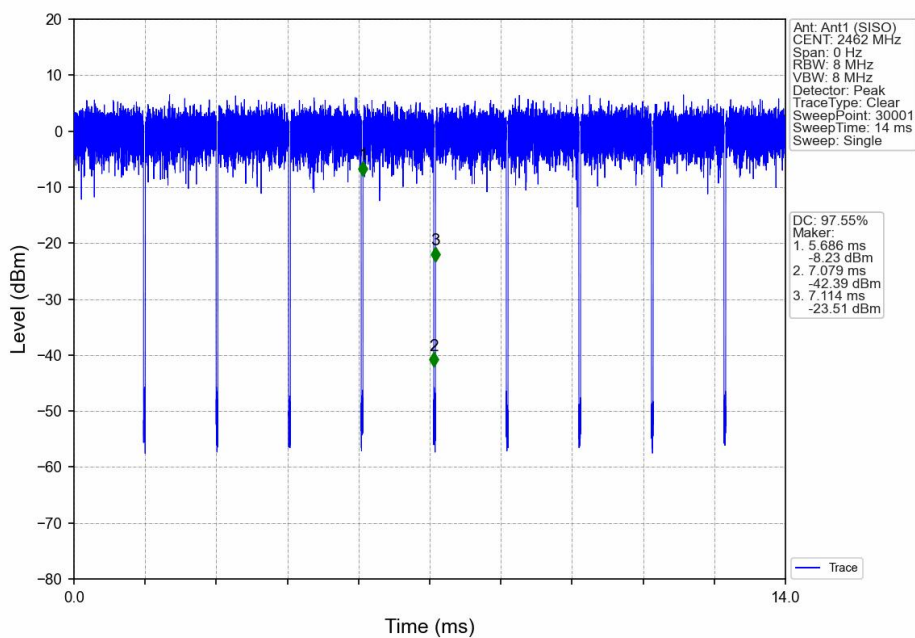
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



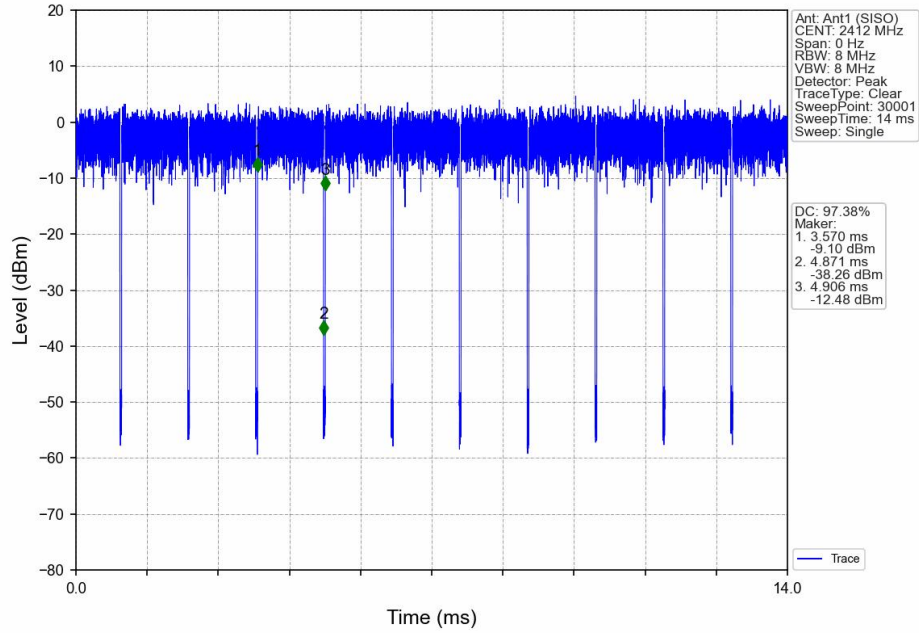
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



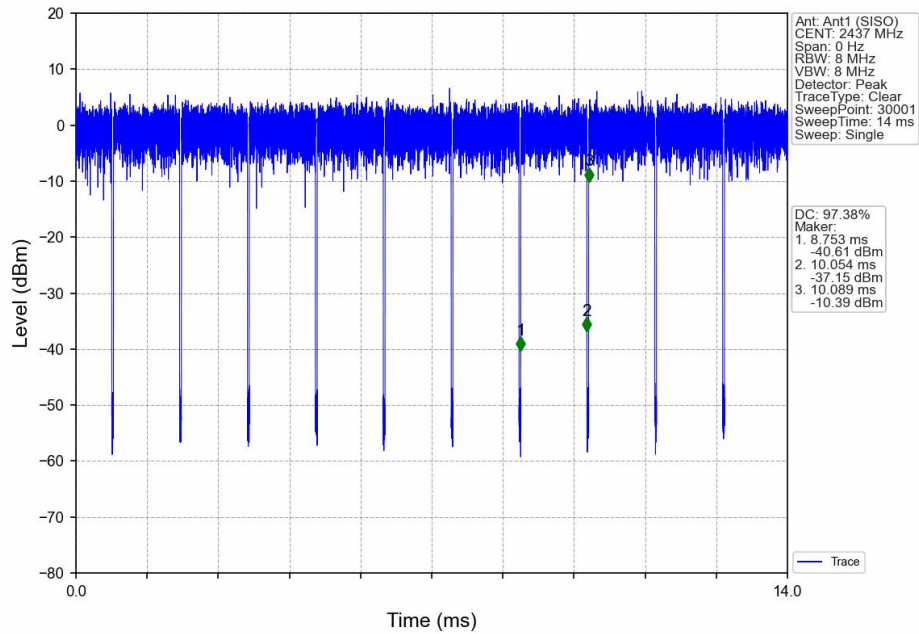
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



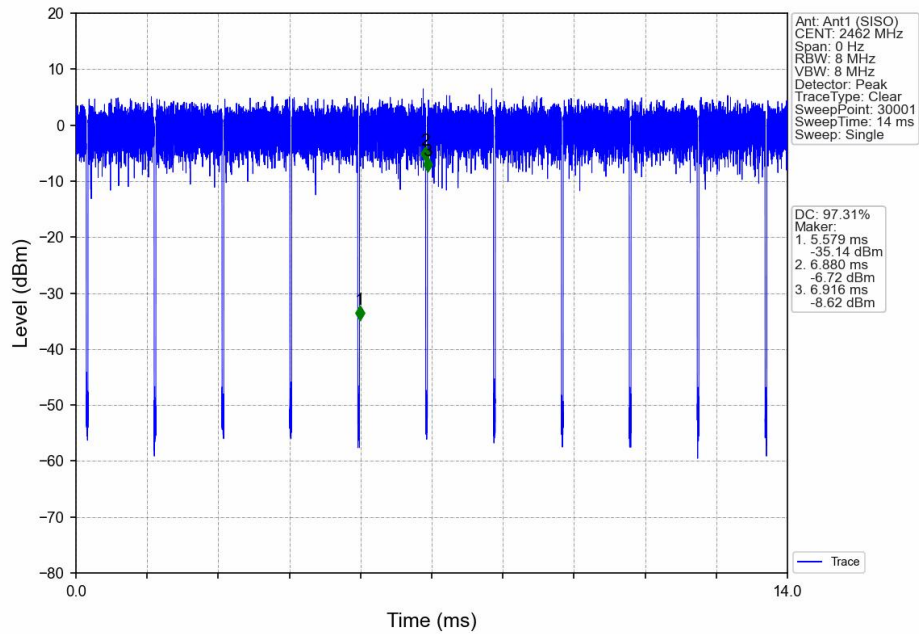
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



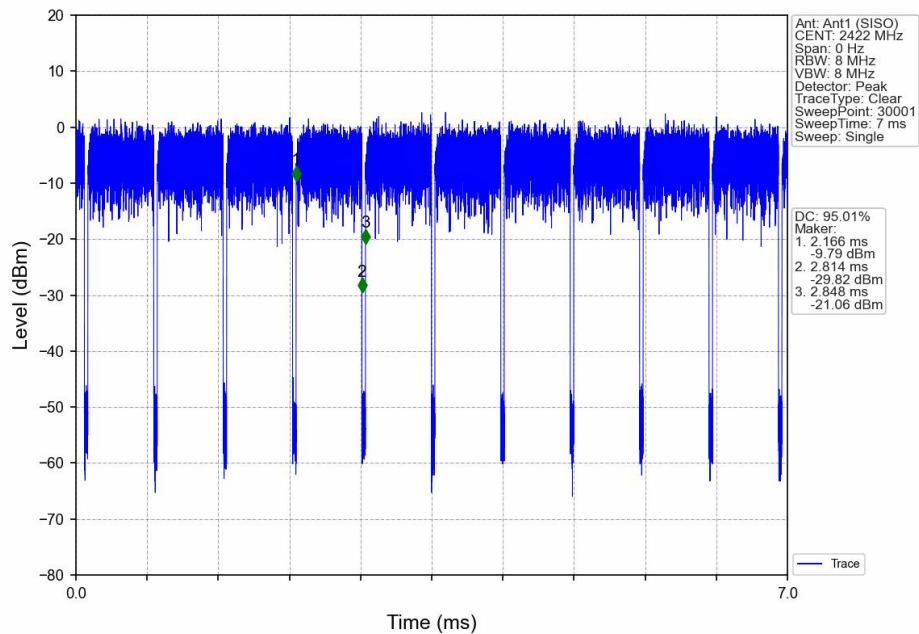
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



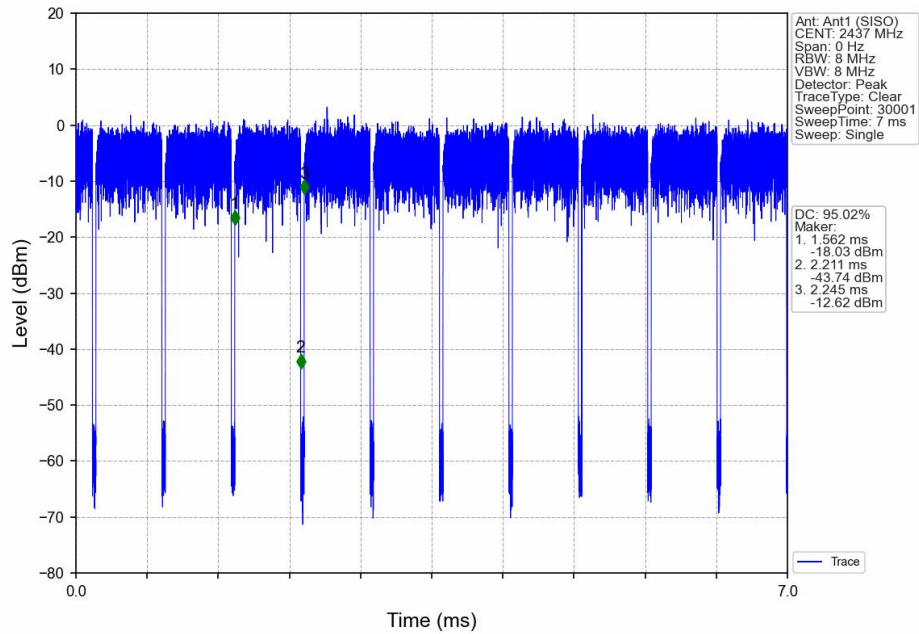
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



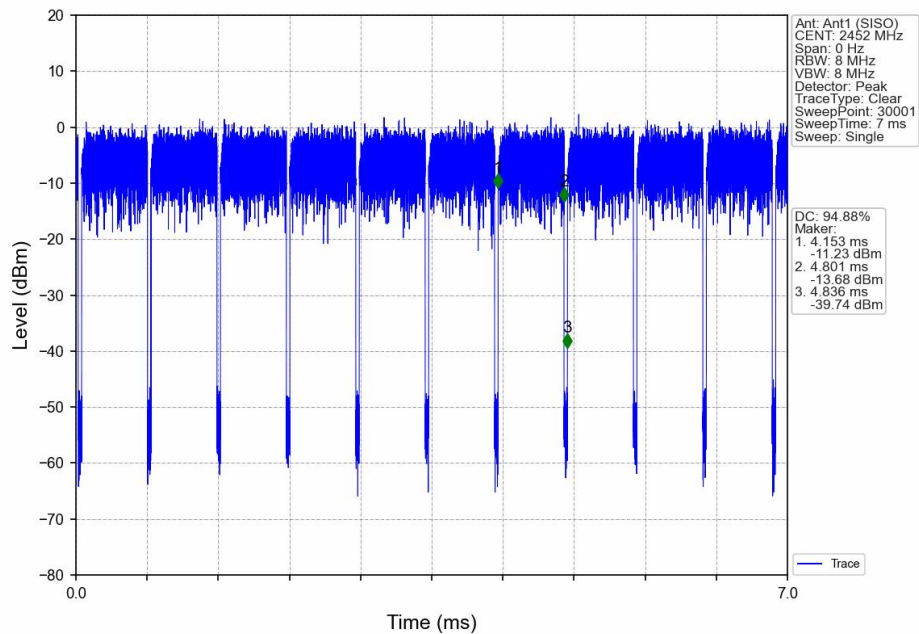
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



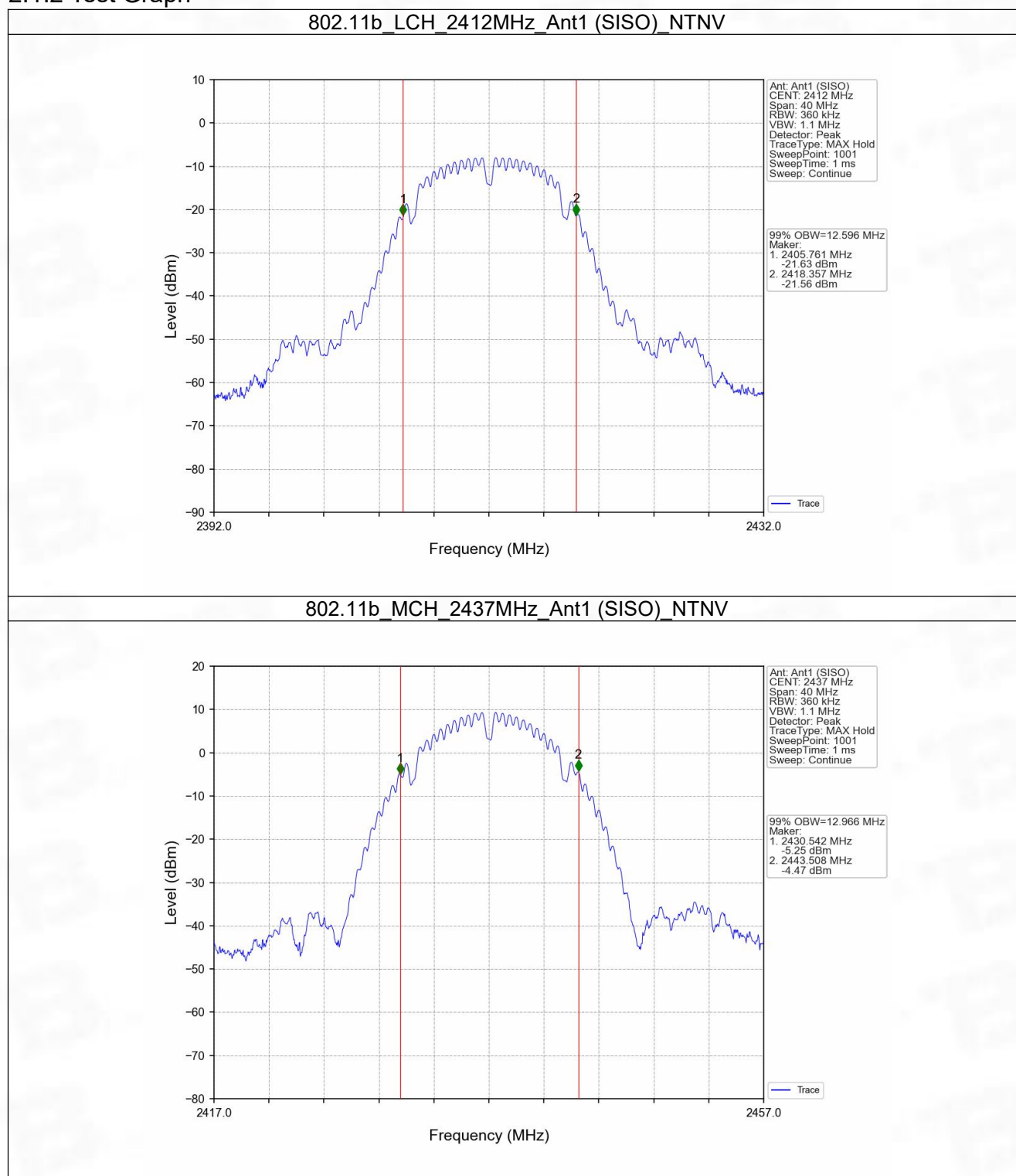
2. Bandwidth

2.1 OBW

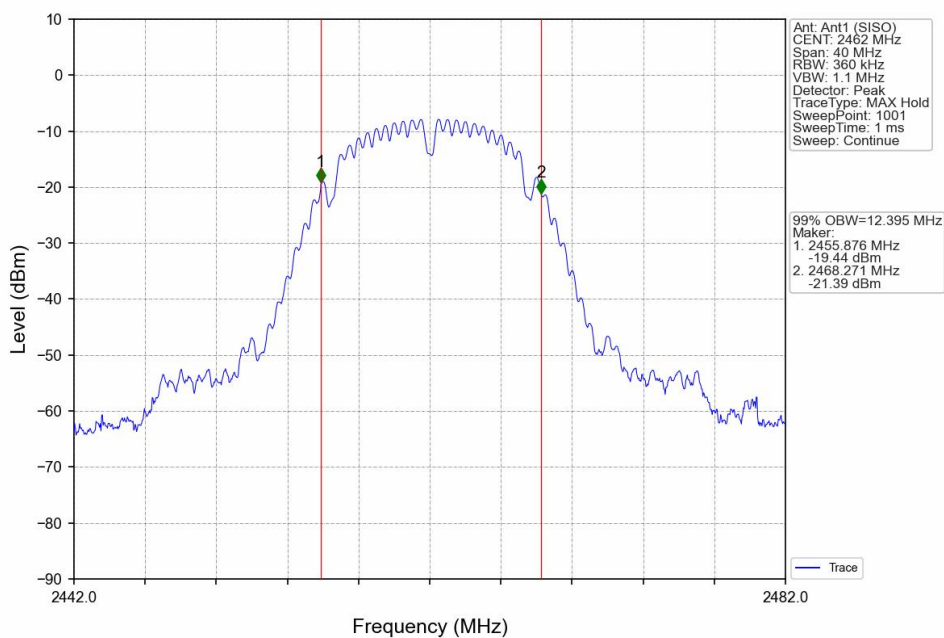
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	1	12.596	Pass
		2437	1	12.966	Pass
		2462	1	12.395	Pass
802.11g	SISO	2412	1	17.434	Pass
		2437	1	17.638	Pass
		2462	1	17.423	Pass
802.11n (HT20)	SISO	2412	1	18.072	Pass
		2437	1	18.054	Pass
		2462	1	18.065	Pass
802.11n (HT40)	SISO	2422	1	36.327	Pass
		2437	1	36.351	Pass
		2452	1	36.361	Pass

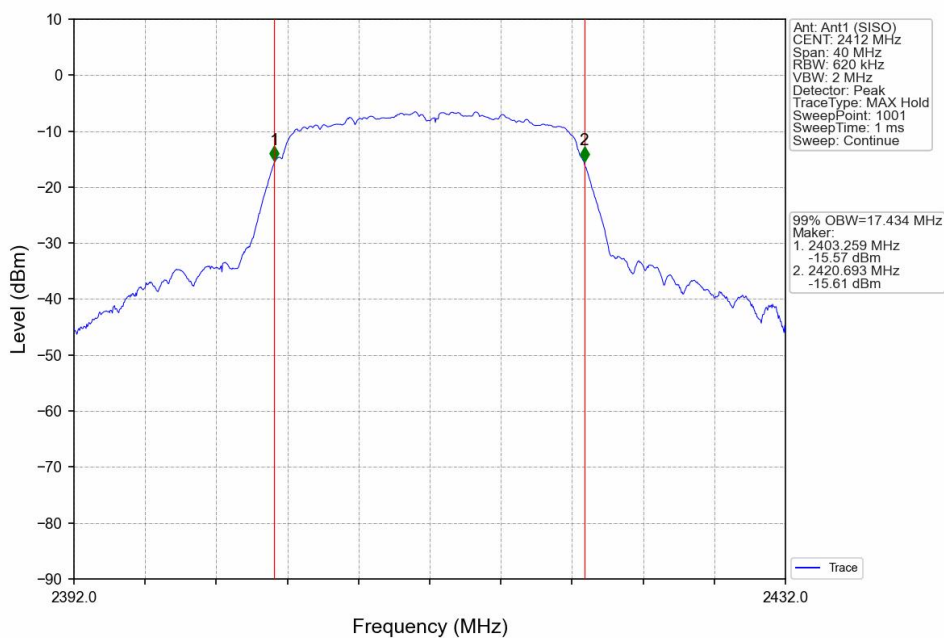
2.1.2 Test Graph



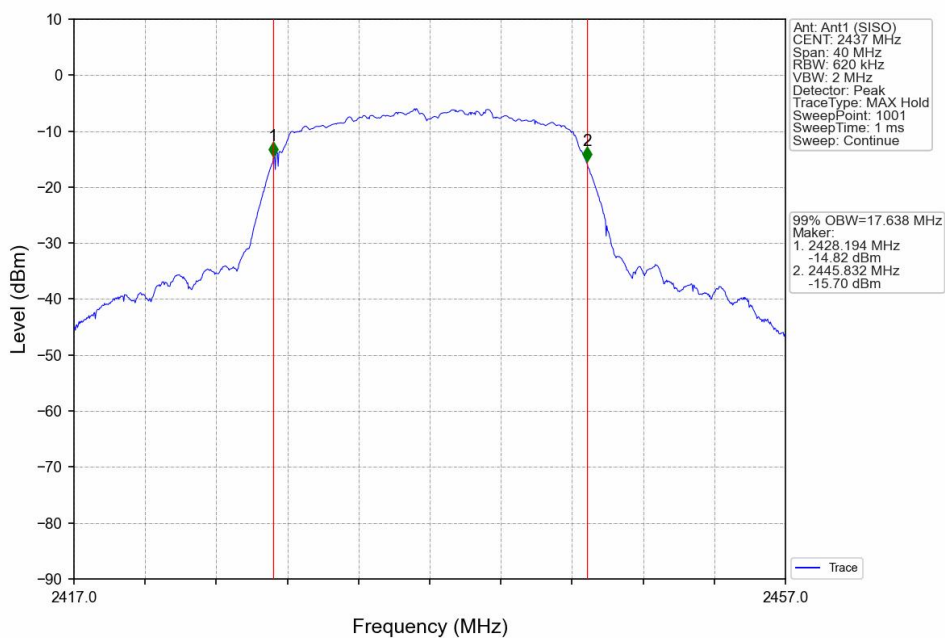
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



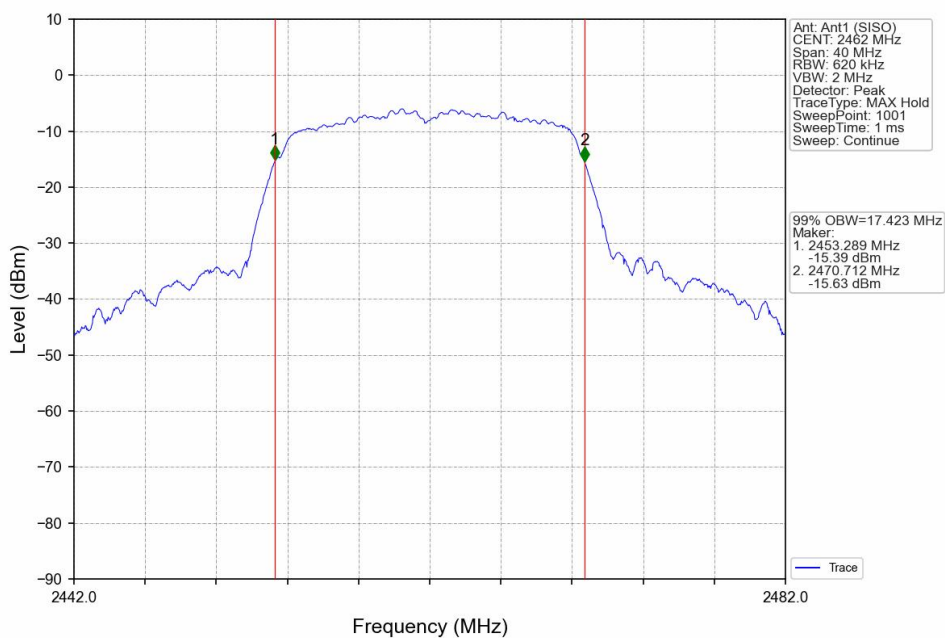
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



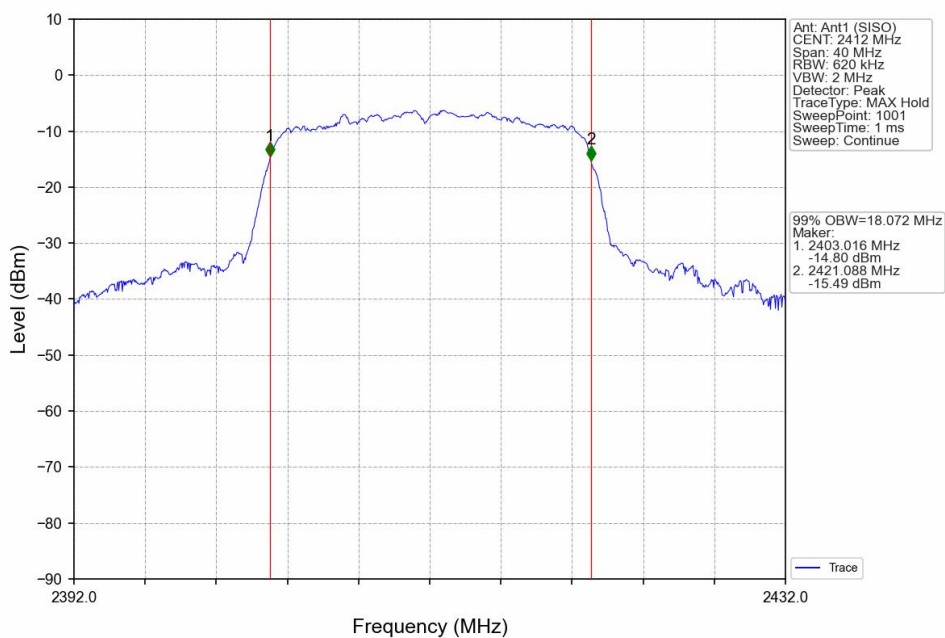
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



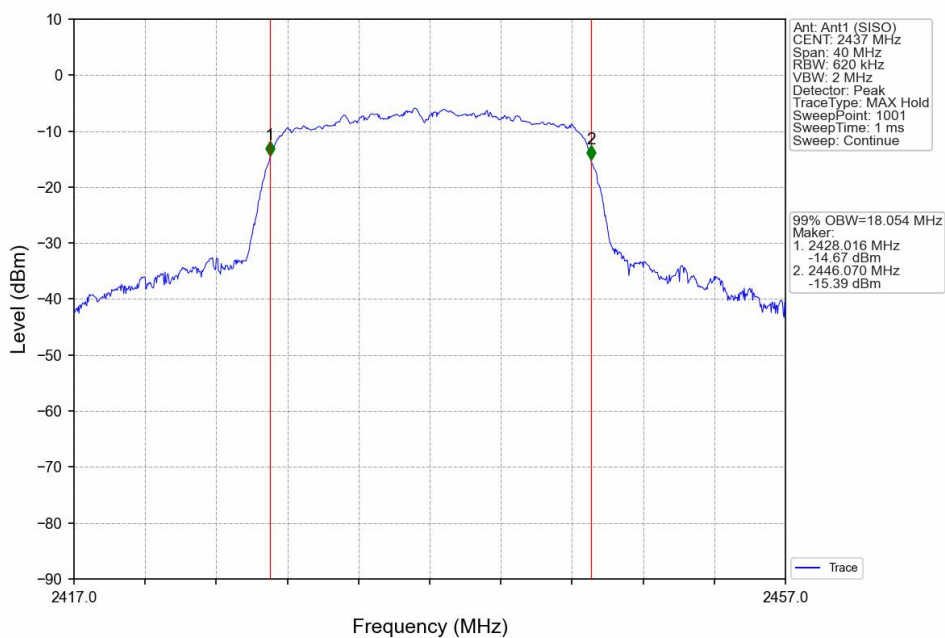
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



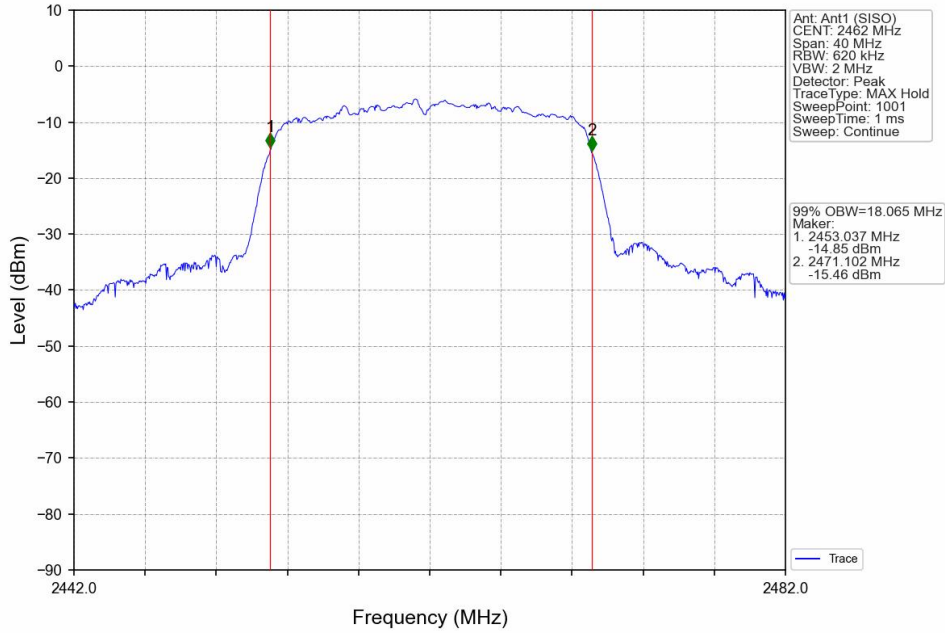
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



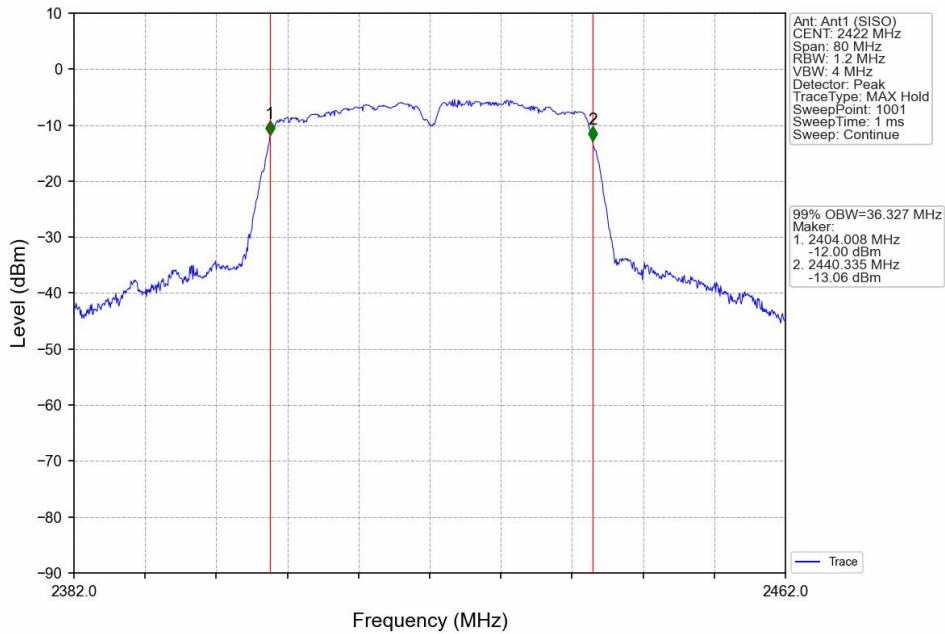
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



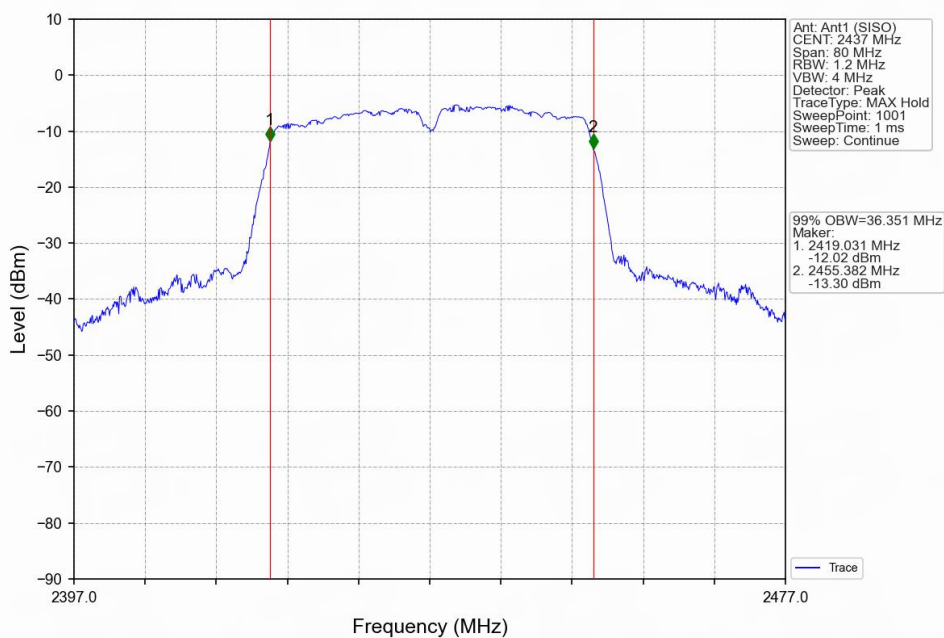
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



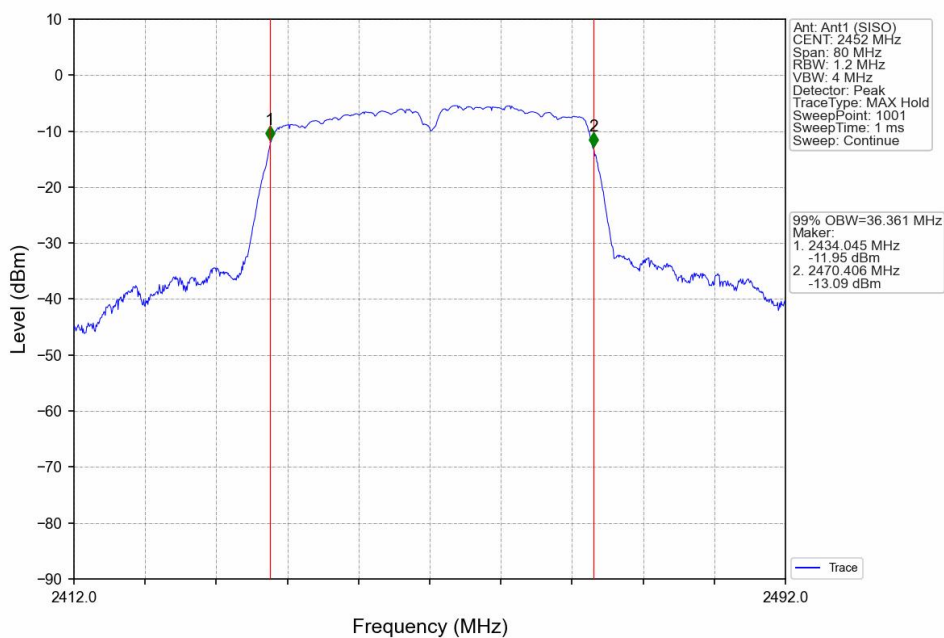
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



802.11n(HT40) MCH 2437MHz Ant1 (SISO) NTNV



802.11n(HT40) HCH 2452MHz Ant1 (SISO) NTNV



2.2 6dB BW

2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	9.177	≥ 0.5	Pass
		2437	1	8.081	≥ 0.5	Pass
		2462	1	9.172	≥ 0.5	Pass
802.11g	SISO	2412	1	16.425	≥ 0.5	Pass
		2437	1	16.415	≥ 0.5	Pass
		2462	1	16.401	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	17.639	≥ 0.5	Pass
		2437	1	17.651	≥ 0.5	Pass
		2462	1	17.640	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	36.364	≥ 0.5	Pass
		2437	1	36.143	≥ 0.5	Pass
		2452	1	36.134	≥ 0.5	Pass